

CLAIMS

What is claimed is:

1. An information storage medium for use with a recording and/or reproducing apparatus comprising:
 - a user data area in which user data is recorded and having first sync patterns; and
 - an additional data area located in at least one of areas before and after the user data area and having second sync patterns,wherein the second sync patterns are different from first sync patterns such that the recording and/or reproducing apparatus distinguishes between the user area and the additional data area according to the first and second sync patterns.
2. The information storage medium of claim 1, wherein at least one of the first and second sync patterns are disposed in plural locations, and the one sync patterns are arranged such that adjacent pairs of the one sync patterns are separated by equal intervals.
3. The information storage medium of claim 2, wherein the second sync patterns are arranged in locations in the additional data area so that a size of each of the user data recorded in the user data area is equal to a size of each of the additional data recorded in the additional data area.
4. The information storage medium of claim 3, wherein the additional data area further comprises sync data that comprise:
 - sync bodies including the second sync patterns that do not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and
 - sync identifications including the second sync patterns that satisfy the RLL (d, k) code.
5. The information storage medium of claim 3, wherein the user data area comprises a plurality of the first sync patterns, and a total size of the additional data recorded in the additional data area is an integer multiple of a size of the user data recorded between an adjacent pair of the first sync patterns.

6. The information storage medium of claim 2, wherein the user data area comprises a plurality of the first sync patterns, and a total size of the additional data recorded in the additional data area is an integer multiple of a size of the user data recorded between an adjacent pair of the first sync patterns.

7. The information storage medium of claim 6, wherein the additional data area further comprises sync data which comprises:

sync bodies including the second sync patterns that do not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and
sync identifications including the second sync patterns that satisfy the RLL (d, k) code.

8. The information storage medium of claim 2, wherein the additional data area further comprises sync data which comprises:

sync bodies including the second sync patterns that do not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and
sync identifications including the second sync patterns that satisfy the RLL (d, k) code.

9. The information storage medium of claim 1, wherein the second sync patterns are arranged in the additional data area so that a size of each of the user data recorded in the user data area is equal to a size of each of the additional data recorded in the additional data area.

10. The information storage medium of claim 1, wherein the user data area comprises a plurality of the first sync patterns, and a total size of the additional data recorded in the additional data area is an integer multiple of a size of the user data recorded between two adjacent first sync patterns.

11. The information storage medium of claim 1, wherein the additional data area further comprises sync data which comprises:

sync bodies including the second sync patterns that do not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and
sync identifications including the second sync patterns that satisfy the RLL (d, k) code.

12. A method of recording information on and/or reproducing information from an information storage medium, the method comprising:

preparing a user data area in which user data is recorded and which has first sync patterns and an additional data area located in at least one of areas before and after the user data area; and

forming second sync patterns used in the additional data area which are different from the first sync patterns used in the user data area.

13. The method of claim 12, wherein one of the first and second the sync patterns are plural and arranged at equal intervals.

14. The method of claim 13, wherein the second sync patterns are arranged in the additional data area so that a size of each of the user data recorded in the user data area is equal to a size of each of the additional data recorded in the additional data area.

15. The method of claim 14, wherein the additional data area further comprises sync data which comprises:

sync bodies including the second sync patterns that do not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and

sync identifications including the second sync patterns that satisfy the RLL (d, k) code.

16. The method of claim 15, wherein the user data area comprises a plurality of the first sync patterns, and a total size of the additional data recorded in the additional data area is an integer multiple of a size of user data recorded between an adjacent pair of the first sync patterns.

17. The method of claim 13, wherein the user data area comprises a plurality of the first sync patterns, and a total size of the additional data recorded in the additional data area is an integer multiple of a size of the user data recorded between an adjacent pair of the first sync patterns.

18. The method of claim 17, wherein the additional data area further comprises sync data which comprises:

sync bodies including the second sync patterns that do not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and
sync identifications including the second sync patterns that satisfy the RLL (d, k) code.

19. The method of claim 13, wherein the additional data area further comprises sync data which comprises:

sync bodies including the second sync patterns that do not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and
sync identifications including the second sync patterns that satisfy the RLL (d, k) code.

20. The method of claim 12, wherein the second sync patterns are arranged in the additional data area so that a size of each of the user data recorded in the user data area is equal to a size of each of the additional data recorded in the additional data area.

21. The method of claim 12, wherein the user data area comprises a plurality of the first sync patterns, and a total size of additional data recorded in the additional data area is an integer multiple of a size of the user data recorded between an adjacent pair of the first sync patterns.

22. The method of claim 12, wherein the additional data area further comprises sync data which comprises:

sync bodies including the second sync patterns that do not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and
sync identifications including the second sync patterns that satisfy the RLL (d, k) code.

23. An information storage medium for use with a recording and/or reproducing apparatus comprising:

a user data area in which user data is recorded and having a first sync pattern; and
an additional data area located adjacent the user data area and having a second sync pattern,

wherein the second sync pattern is other than the first second pattern such that the recording and/or reproducing apparatus distinguishes between the user area and the additional data area according to the first and second sync patterns.

24. The information storage medium of claim 23, wherein:
the first sync pattern is disposed in a first location and a second location of the user data area so as to define a first size of the user data,
the second sync pattern is disposed in a first location and a second location of the additional data area so as to define a second size of the additional data, and
the first size is equal to the second size.

25. The information storage medium of claim 23, further comprising another user data area having the first sync pattern, the additional data area being disposed between the user data area and the another user data area.

26. The information storage medium of claim 23, wherein the user data area comprises error correcting code (ECC) recording units.

27. A recording and/or reproducing apparatus for use with an information storage medium, comprising:

a recording and/or reproducing unit to optically transfer data including user data and/or additional data between the apparatus and the information storage medium; and

a controller to control the recording and/or reproducing unit to determine a user data area of the information storage medium according to a first sync pattern recorded on the information storage medium, to determine an additional information area of the information storage medium according to a second sync pattern other than the first sync pattern recorded on the information storage medium, to transfer the user data with respect to the determined user data area, and to transfer the additional data with respect to the determined additional information area.

28. The recording and/or reproducing apparatus of claim 27, wherein:
the first sync pattern is disposed in a first location and a second location of the user data area so as to define a first size of the user data,
the second sync pattern is disposed in a first location and a second location of the additional data area so as to define a second size of the additional data,
wherein the first size is equal to the second size.

29. The recording and/or reproducing apparatus of claim 27, wherein the controller further determines another user data area having the first sync pattern such that the additional data area being disposed between the user data area and the another user data area, and transfers the user data with respect to the another user data area.

30. The recording and/or reproducing apparatus of claim 27, wherein the controller further detects in the first sync pattern:

a sync body including the first sync pattern that does not satisfy a run-length limited (RLL) (d, k) code having a minimum constraint of d and a maximum constraint of k; and

a sync identification including the first sync pattern that satisfies the RLL (d, k) code.

31. The recording and/or reproducing apparatus of claim 30, wherein the controller further detects in the second sync pattern:

a second sync body including the second sync pattern that does not satisfy the RLL (d, k) code; and

a second sync identification including the second sync pattern that satisfies the RLL (d, k) code.